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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,756	09/23/2003	Jeffrey M. Pfeiffer	DP-308982	2557

22851 7590 09/10/2004

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EXAMINER	
CORRIGAN, JAIME W	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,756	PFEIFFER ET AL.	
	Examiner	Art Unit	
	Jaime W Corrigan	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b as being anticipated by Kadowaki et al. (PN 6,047,674).

Regarding claim 1 Kadowaki discloses a method of operation for an internal combustion engine having a crankshaft (See Figure 1 (11)), a camshaft (See Figure 1 (15), (16)) and a positionable phaser (See Figure 1 (50)) for changing a phase angle of the camshaft with respect to the crankshaft, the method comprising the steps of: receiving a series of crankshaft pulses (See Column 6 Lines 56-67, Column 7 Lines 1-5) representative of crankshaft rotation, and a series of camshaft pulses representative of camshaft rotation (See Column 6 Lines 56-67, Column 7 Lines 1-5); calculating a base offset cam phase using the crankshaft and camshaft pulses when said phaser is commanded to a reference position (See Column 6 Lines 21-32); calculating a current cam phase using the crankshaft and camshaft pulses when said phaser is commanded to a position other than said reference position (See Column 6 Lines 21-32); and determining a position of said phaser based on a deviation of said current cam phase from said base offset cam phase (See Column 6 Lines 21-32).

Regarding claim 2 Kadowaki discloses storing said base offset cam phase at engine shut-down (See Figure 1 (30)); calculating sample base offset values using the crankshaft and camshaft pulses (See Column 6 Lines 56-67, Column 7 Lines 1-5) during a period following engine re-starting, and averaging (See Figures 2-4) said sample base offset values; and comparing the stored base offset cam phase to the averaged sample base offset values, and initializing said base offset cam phase based on such comparison (See Column 6 Lines 21-32).

Regarding claim 3 Kadowaki discloses initializing said base offset cam phase in accordance with the stored base offset cam phase if there is substantial deviation between the averaged sample base offset values and the stored base offset cam phase (See Column 6 Lines 21-32).

Regarding claim 4 Kadowaki discloses initializing said base offset cam phase in accordance with the averaged sample base offset values if the stored base offset cam phase is invalid (See Column 6 Lines 21-32).

Regarding claim 5 Kadowaki discloses periodically calculating sample base offset values using the crankshaft and camshaft pulses during operation of said engine when said phaser is commanded to said reference position (See Figures 2-4); averaging said sample base offset values (See Figures 2-4); and updating said base

offset cam phase in accordance with the averaged sample base offset values (See Column 6 Lines 21-32).

Regarding claim 6 Kadowaki discloses rejecting sample base offset values falling outside a set of calibrated thresholds (See Figures 2-4).

Regarding claim 7 Kadowaki discloses updating said base offset cam phase by replacing said base offset cam phase with the averaged sample base offset values (See Figures 5-7).

Regarding claim 8 Kadowaki discloses the steps of periodically comparing said base offset cam phase to a set of calibrated thresholds defining a valid base offset range (See Figures 2-4); and disabling a control of said phaser if said base offset cam phase is outside said valid base offset range (See Figures 5-7).

Regarding claim 9 Kadowaki discloses said engine includes a camshaft wheel having a plurality of teeth (See Figure 1 (15)), and the camshaft pulses (See Column 6 Lines 56-67, Column 7 Lines 1-5) are produced in response to detected edges of said teeth, the method of operation including the steps of: calculating a base offset cam phase for each of said plurality of teeth when said phaser is commanded to said reference position (See Column 6 Lines 21-32); calculating said current cam phase using a camshaft pulse associated with a selected tooth of said camshaft wheel when

said phaser is commanded to a position other than said reference position (See Column 6 Lines 21-32); and determining said position of said phaser based on a deviation of said current cam phase from a base offset cam phase calculated for said selected tooth (See Column 6 Lines 21-32).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kadowaki (PN 6,085,706), Morikawa (PN 6,079,381) disclose similar cam phasers.

Any inquiry concerning this communication from the examiner should be directed to Examiner Jaime Corrigan whose telephone number is (703) 308-2639. The examiner can normally be reached on Monday - Friday from 8:30 a.m. – 6:00 p.m. 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

JC

Jaime Corrigan

Jaime Corrigan

Patent Examiner

September 07, 2004

Art Unit 3748

THOMAS DENION
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